

Remarks

As this application is now amended, Claims 1-27 are presented for examination. Claims 1-3 have been amended and new claims 18-27 have been added.

In response to the objection raised by the Examiner, applicants have amended Claim 3, line 2 to change the word "then" to the appropriate word--than--. As thus corrected, it is respectfully submitted that the examiner's objection has been met.

Applicants acknowledge again, with appreciation, the allowance of Claims 13-17 and the indication of allowability of Claim 11 subject to being rewritten in independent form.

Applicants' claims 1-8, 10 and 12 stand rejected under 35 U.S.C. section 102(b) as being anticipated by *Feisthamel*. This rejection is respectfully traversed.

Applicants have amended Claim 1 to emphasize the fact that the pin is formed on a non-upset end of a tubular body and that the pin threads extend to a vanishing point on the surface of the non-upset tubular body. Claim 1 has also been amended by deleting the limitation that the pin and box threads extend along a frustoconical surface. On this point, it is only the thread root of the pin thread that is formed on a frustoconical surface to produce the thread runout feature of applicants' invention. As presently amended, Claim 1 is not intended to be limited to thread forms in which the pin and box threads are formed on frustoconical surfaces but rather is intended to cover cylindrical as well as frustoconical and other thread forms.

Applicants' independent Claims 1 and 6, as currently amended and as originally submitted, call for the pin threads to be formed on a tubular section of the tube body having an outside diameter no greater than an outside diameter of a major length of the tube body. As noted in applicants' specification at page 5, line 15 *et seq*, an important feature of the present invention is that applicants' pin connectors may be fabricated on the ends of non-upset pipe. See also applicants' specification at page 10, line 10 *et seq*.

In rejecting Applicants' claims 1-8, 10 and 12, the Examiner takes the position that *Feisthamel* teaches that the tubular body on which the pin is made has an external surface with an outside diameter no greater than the outside diameter of a major length of the pin member. This position is respectfully traversed.

It is respectfully submitted that *Feisthamel* describes a pipe connection in which a pin is formed on the upset end of a tube and the upset end of the tube does not have an outside diameter that is no greater than an outside diameter of a major length of the tube body. See for example Figure 3 of *Feisthamel* where the lead line for the reference character 2a shows a reduced diameter pipe section adjoining the upset end of the pipe. Such a construction using an upset pipe end is consistent with the requirement of the *Feisthamel* design that the pin provide a shoulder 12 against which the packing ring 13 is to be compressed. Forming a shoulder 12 on a non-upset pipe end would require that the threads be formed deeply into the pipe wall, thereby producing a weak connection. Applicants have previously noted the distinction between the *Feisthamel* design and that defined by applicants' claims in applicants' earlier amendment.

Applicants' Claim 1, as now presented and as presented in the previous amendment, calls for an annular inclined shoulder formed internally of the box for engagement with the inclined nose section of the pin for preventing the inclined nose section from moving radially away from engagement with the shoulder.

In rejecting applicants' claims, the examiner contends that the *Feisthamel* box includes an annular inclined shoulder formed internally of the box for engagement with the inclined nose section. This contention is respectfully traversed.

It is respectfully submitted that *Feisthamel* does not disclose an annular inclined shoulder formed internally of the box for engagement with the inclined nose section on the pin for preventing the inclined nose section from moving radially away from engagement with the shoulder. It is initially noted that the *Feisthamel* pin is not intended to engage the internal shoulder formed in the box of the connection. If the pin were made up into the box to the extent

necessary to engage the pin nose with the internal shoulder within the connection, the *Feisthamel* packing rings would be overly compressed and forced to engage portions of the pin not intended to provide the sealing surfaces. Secondly, it is respectfully noted that if the pin nose were to engage the shoulder, the inclination of the *Feisthamel* shoulder would actually move the pin nose radially inwardly and away from engagement with the shoulder.

In rejecting applicants' Claim 2, the examiner contends that *Feisthamel* discloses pin threads that run out to an outside diameter of the pin component at the starting point of the pin threads. This contention is respectfully traversed.

As originally presented and as now amended, Claim 2 recites that the pin threads "run out" to an outside diameter of the first tubular body at the starting point of the pin threads. The term "run out" is defined in applicants' specification at page 4, line 2 *et seq* as applied to threads having thread roots that continue to decrease in depth on the external surface of the pipe and disappear. The final turn of the run out threads do not make a full depth cut into the pipe body. It is respectfully submitted that there are no "run out" threads (as that term is normally used and as it is defined and used in applicants' specification) described or illustrated in the *Feisthamel* patent.

In rejecting applicants' Claim 3, the examiner contends that *Feisthamel* discloses threads in which the stab flanks and load flanks have different inclinations. This rejection is respectfully traversed.

Applicants' Claim 3 recites that the stab flanks of the pin threads have a greater inclination relative to a central axis of the connector than the load flanks of the pin threads. It is respectfully submitted that the threads illustrated in the *Feisthamel* patent have the same inclination on both the stab flank and the load flank.

Applicants' independent Claim 6 has never been amended. Claim 6 calls for the pin threads to be formed on a tubular section of the first tubular body having an outside diameter no

greater than an outside diameter of a major length of the first tubular. As previously noted, the *Feisthamel* pin threads are formed on the upset end of a tube body, which upset has a greater outside diameter than an outside diameter of a major length of the tube body.

Applicants' independent Claim 6 calls for the pin threads to run out on an outside diameter of the first tubular body. As previously noted, it is respectfully submitted that there are no "run out" threads shown or described in the *Feisthamel* reference. This distinction was also raised in applicants' previous response.

In rejecting Claim 8 (which depends from Claim 6), the Examiner contends that *Feisthamel* discloses an elastomeric seal ring carried in an annular "groove" formed on the pin component. This contention is respectfully traversed.

Applicants' Claim 8, which has never been amended, calls for an external seal carried in an annular "groove" formed in the tubular body containing the pin. As illustrated in applicants' Figure 4 and as commonly employed in the art, the term "groove" describes a depression having two confining walls spaced laterally from each other. The construction of applicants' groove 58 limits the lateral movement of the seal 57 in two lateral directions. By contrast, *Feisthamel* deploys his packing ring 13 (or 13a) either in a box "recess" 10 or against the pin shoulder 12, either of which restricts movement in only one lateral direction. The *Feisthamel* design requires that the packing ring be compressed axially as the pin and box of the connection are being made up. Such compression would not be possible if the packing ring were carried in a groove as recited in applicants' claims.

With respect to the rejection of applicants' claims 1-8, 10 and 12 under 35 U.S.C. §102(b) based solely on *Feisthamel*, it is respectfully submitted that rejection of these claims based on this single reference is not justified. "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 2 USPQ2d 1051, 1053 (Fed.

Cir.1987). "The identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

Applicants' have pointed out the distinctions between the limitations in applicants' claims 1-8, 10 and 12 and the teachings of the *Feisthamel* patent. Clearly, *Feisthamel* neither teaches nor suggests applicants' invention as defined by the rejected claims. It is respectfully submitted that applicants' claims are clearly patentable over the *Feisthamel* patent and allowance of such claims is earnestly solicited.

Applicants' Claim 9 stands rejected under 35 U.S.C. 103(a) as being unpatentable over *Feisthamel*. Claim 9 has never been amended. The examiner contends that *Feisthamel* discloses a seal ring carried in an annular groove and indicates that it would have been obvious to place the groove in the box component of the connection to prevent the loosening of the connection. This contention and the rejection based thereon are respectfully traversed.

As previously noted, applicants' claims directed to a seal carried in an annular "groove" distinguish over the *Feisthamel* reference which shows a seal ring carried in a recess. If the *Feisthamel* seal ring were to be placed in a groove as defined by applicants' claims, it would not be possible to axially compress the seal ring upon makeup of the pin and box as intended by *Feisthamel* and the *Feisthamel* design would be rendered inoperative. Moreover, it is not understood that the seal ring of *Feisthamel* has any bearing on preventing the loosening of the connection. However, if the seal ring were to have any affect on the loosening of the connection, it is respectfully submitted that a seal ring carried in a groove as defined by applicants would not operate in the same manner with regard to such loosening as does a *Feisthamel* seal ring that is positioned in a recess and then axially compressed between shouldering connection components.

"To support the conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed invention or the examiner must present a convincing line of reasoning as to why the artisan would have found the

claimed invention to have been obvious in light of the teachings of the references." Ex parte Clapp, 227 USPQ 972, 973 (Bd. Pat. App. & Inter. 1985).

Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. In re Fine, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); In re Jones, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. In re Mills, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990)

Although a prior art device "may be capable of being modified to run the way the apparatus is claimed, there must be a suggestion or motivation in the reference to do so." 16 USPQ2d at 1432.). See also In re Fritch, 972 F.2d 1260, 23 USPQ2d 1780 (Fed. Cir. 1992).

Applicants have also pointed out that the proposed modification of the *Feisthamel* connection suggested in rejecting applicants' Claim 9 would render the connection unsuited for its intended purpose. If the proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. In re Gordon, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984)

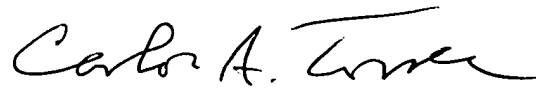
If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. In re Ratti, 270 F.2d 810, 123 USPQ 349 (CCPA 1959).

Applicants' newly added claims 18-27 are directed to a connection having a non-upset pin with run out threads and an annular inclined shoulder formed internally of the box for

engagement with the inclined nose section of the pin nose for preventing the inclined nose section from moving radially away from engagement with the shoulder. As previously noted, the *Feisthamel* connector lacks the recited limitations. Accordingly, it is respectfully submitted that Claims 18-17 are clearly distinguishable over the *Feisthamel* reference, or any of the other references of record, whether taken alone or in combination, and allowance of such claims is earnestly solicited.

In view of the foregoing argument and authority, it is respectfully submitted that applicants' Claims 1-27 are patentably distinct over the art of record, or any proper combination thereof, and allowance of such claims is respectfully solicited.

Respectfully submitted,



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By: _____
Martha Jeffers



MARKED UP VERSION SHOWING CHANGES

1. (Twice amended) A connector for connecting together the free pin end and the free box end of two tubular bodies comprising:

a non-upset pin having pin threads formed externally on an end of a first tubular body, said pin threads having a pin thread root extending along a frustoconical surface from a starting vanishing point on said first tubular body and terminating adjacent the free pin end, said pin threads further being formed on a tubular section of said first tubular body having an outside diameter no greater than an outside diameter of a major length of said first tubular body,

a pin nose at the free pin end, said pin nose having an inclined nose section,

a box having box threads formed internally on an end of a second tubular body for engagement with said pin threads, said box threads extending [along a frustoconical surface] from a starting point on said second tubular body and terminating adjacent the free box end,

an annular inclined shoulder formed internally of said box for engagement with said inclined nose section for preventing said inclined nose section from moving radially away from engagement with said shoulder,

an external seal between said pin and said box adjacent said pin thread starting point and proximate said free box end, said external seal comprising a pin seal surface formed externally of said pin,

an annular seal member carried in a groove within said free box end, and

an internal seal adjacent said box thread starting point and said free pin end whereby said pin threads and said box threads are confined between said external and internal seals when said pin and box are engaged.

2. (Twice amended) A connector as defined in Claim 1 wherein said pin threads run out to an outside diameter of said first tubular body at said vanishing starting point of said threads.

3. (Twice amended) A connector as defined in Claim 1 wherein stab flanks of said pin threads have a greater inclination relative to a central axis of said connector [than] than load flanks of said pin threads.